National Institute of Environmental Health Sciences

Human health and the water environment: Using the DPSEEA framework to identify the driving forces of disease

Author(s): Gentry-Shields J, Bartram J
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Abstract:

There is a growing awareness of global forces that threaten human health via the water environment. A better understanding of the dynamic between human health and the water environment would enable prediction of the significant driving forces and effective strategies for coping with or preventing them. This report details the use of the Driving Force-Pressure-State-Exposure-Effect-Action (DPSEEA) framework to explore the linkage between water-related diseases and their significant driving forces. The DPSEEA frameworks indicate that a select group of driving forces, including population growth, agriculture, infrastructure (dams and irrigation), and climate change, is at the root cause of key global disease burdens. Construction of the DPSEEA frameworks also allows for the evaluation of public health interventions. Sanitation was found to be a widely applicable and effective intervention, targeting the driver/pressure linkage of most of the water-related diseases examined. Ultimately, the DPSEEA frameworks offer a platform for constituents in both the health and environmental fields to collaborate and commit to a common goal targeting the same driving forces.

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Resource Description

Exposure :

weather or climate related pathway by which climate change affects health

Ecosystem Changes, Food/Water Quality

Food/Water Quality: Pathogen

Geographic Feature:

resource focuses on specific type of geography

Freshwater

Geographic Location:

resource focuses on specific location

Global or Unspecified

Health Impact:

specification of health effect or disease related to climate change exposure

Infectious Disease, Other Health Impact

Infectious Disease: Foodborne/Waterborne Disease, Vectorborne Disease

Foodborne/Waterborne Disease: General Foodborne/Waterborne Disease

Vectorborne Disease: Fly-borne Disease, Mosquito-borne Disease

Fly-borne Disease: Onchocerciasis

Mosquito-borne Disease: Dengue, Malaria, Viral Encephalitis

Other Health Impact: Lymphatic filariasis

Intervention: ☑

strategy to prepare for or reduce the impact of climate change on health

A focus of content

Medical Community Engagement: ☑

resource focus on how the medical community discusses or acts to address health impacts of climate change

A focus of content

Resource Type: ☑

format or standard characteristic of resource

Review

Timescale: ☑

time period studied

Time Scale Unspecified